



SLOVENSKI STANDARD
oSIST prEN 12121:2020
01-julij-2020

Kemikalije, ki se uporabljajo za pripravo pitne vode - Natrijev disulfit

Chemicals used for treatment of water intended for human consumption - Sodium disulfite

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Natriumdisulfit

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Disulfite de sodium

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EUROPEAN STANDARD
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Chemicals used for treatment of water intended for human consumption - Sodium disulfite

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Disulfite de sodium

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Natriumdisulfit

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 164.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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prEN 12121:2020 (E)**European foreword**

This document (prEN 12121:2020) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12121:2012.

In comparison with the previous edition, the following technical modifications have been made:

- a) modification of 7.3 on transportation regulations and labelling, adding the sentence “The user shall be aware of the incompatibilities between transported products.”;
- b) modification of 7.4 on marking. The requirements of marking are also applied to the accompanying documents;
- c) use of the changed classification and labelling (see [4]).

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Introduction

In respect of potential adverse effects on the quality of water intended for human consumption caused by the product covered by this document:

- a) this document provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA;
- b) it should be noted that, while awaiting the adoption of a verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

NOTE Conformity with this document does not confer or imply acceptance or approval of the product in any of the Member States of the EU or EFTA. The use of the product covered by this document is subject to regulation or control by National Authorities.

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prEN 12121:2020 (E)**1 Scope**

This document is applicable to sodium disulfite used for treatment of water intended for human consumption. It describes the characteristics of sodium disulfite and specifies the requirements and the corresponding test methods for sodium disulfite. It gives information on its use in water treatment. It also determines the rules relating to safe handling and use (see Annex B).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 3696, *Water for analytical laboratory use - Specification and test methods (ISO 3696)*

ISO 3629, *Photography — Processing chemicals — Specifications for potassium metabisulfite*

ISO 5993, *Sodium hydroxide for industrial use — Determination of mercury content — Flameless atomic absorption spectrometric method*

ISO 6353-1, *Reagents for chemical analysis — Part 1: General test methods*

ISO 8213, *Chemical products for industrial use — Sampling techniques — Solid chemical products in the form of particles varying from powders to coarse lumps*

ISO 9297, *Water quality — Determination of chloride — Silver nitrate titration with chromate indicator (Mohr's method)*

ISO 22743, *Water quality — Determination of sulfates — Method by continuous flow analysis (CFA)*

3 Terms and Definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Description**4.1 Identification****4.1.1 Chemical name**

Sodium disulfite.

4.1.2 Synonym or commons name

Sodium metabisulfite, sodium pyrosulfite.

4.1.3 Relative molecular mass

190,10.

4.1.4 Empirical formula

Na₂S₂O₅.

4.1.5 Chemical formula

Na₂S₂O₅.

4.1.6 CAS-Registry Number ¹

7681-57-4.

4.1.7 EINECS reference ²

231-673-0.

4.2 Commercial form

The product is a crystalline powder.

4.3 Physical properties**4.3.1 Appearance and odour**

The product is a white, free-flowing fine crystalline powder with a slight odour of sulfur dioxide.

4.3.2 Density

The density of the product is 2,7 g/cm³ at 20 °C.

The bulk density is approximately 1,3 g/cm³ at 20 °C.

4.3.3 Solubility (in water)

The solubility of the product in water is 540 g/l at 20 °C.

4.3.4 Vapour pressure

Not applicable.

4.3.5 Boiling point at 100 kPa ³

Not applicable.

4.3.6 Crystallization point

Not applicable.

4.3.7 Specific heat

Not known.

4.3.8 Viscosity dynamic

Not applicable.

¹ Chemical Abstracts Service Registry Number.

² European Inventory of Existing Commercial Chemical Substances.

³ 100 kPa = 1 bar.

prEN 12121:2020 (E)**4.3.9 Critical temperature**

Not applicable.

4.3.10 Critical pressure

Not applicable.

4.3.11 Physical hardness

Not applicable.

4.4 Chemical properties

The solution is weakly acid. The pH value of a saturated aqueous solution of sodium disulfite is between 4,5 and 5,0.

Sodium disulfite dissolves in water forming sodium hydrogen sulfite.

At elevated temperatures (>150 °C) or on contact with acids sulfur dioxide is generated.

Sodium disulfite reacts violently with oxidising agents; e.g. with sodium hypochlorite or hydrogen peroxide.

5 Purity criteria**5.1 General**

This document specifies the minimum purity requirements for sodium disulfite used for the treatment of water intended for human consumption. Limits are given for impurities commonly present in the product. Depending on the raw material and the manufacturing process other impurities could be present and, if so, this shall be notified to the user and when necessary to relevant authorities.

Users of this product should check the national regulations in order to clarify whether it is of appropriate purity for treatment of water intended for human consumption, taking into account raw water quality, required dosage, contents of other impurities and additives used in the products not stated in this product standard.

Limits have been given for impurities and chemical parameters where these are likely to be present in significant quantities from the current production process and raw materials. If the production process or raw materials leads to significant quantities of impurities, by-products or additives being present, this shall be notified to the user.

5.2 Composition of commercial product

The content of sodium disulfite shall not be less than a mass fraction of 95 % ($\text{Na}_2\text{S}_2\text{O}_5$).

The concentration of sodium disulfite shall be within ± 5 % of the manufacturer's declared value.

5.3 Impurities and main by-products

The sum of the content of sodium sulfate and sodium chloride shall not exceed a mass fraction of 5 % of the commercial product.

5.4 Chemical parameters

The product shall conform to the requirements specified in Table 1.

Table 1 — Chemical parameters

Parameter		Limit
		mg/kg of commercial product
Antimony (Sb)	max.	1
Arsenic (As)	max.	1
Cadmium (Cd)	max.	1
Chromium (Cr)	max.	1
Lead (Pb)	max.	5
Mercury (Hg)	max.	1
Nickel (Ni)	max.	1
Selenium (Se)	max.	1

NOTE Other chemical parameters and indicator parameters are not relevant in sodium disulfite because the raw materials used in the manufacturing process are free of them. For parametric values of sodium disulfite on trace metal content in drinking water, see [3].

6 Test methods **iTeh STANDARD PREVIEW** (standards.iteh.ai)

6.1 Sampling

Observe the general recommendations of ISO 3165 and take account of ISO 6206.

Prepare the laboratory sample(s) required by the relevant procedure described in ISO 8213.

6.2 Analyses

6.2.1 General

All reagents shall be of a recognized analytical grade and the water used shall conform to the grade 3 specified in EN ISO 3696.

6.2.2 Main product

6.2.2.1 General

The sodium disulfite content shall be determined by the method for potassium disulfite described in ISO 3629.

6.2.2.2 Principle

Sodium disulfite is oxidized with a fixed volume of iodine. The excess of added iodine is titrated with sodium thiosulfate. The determination includes other sulfites in addition to $\text{Na}_2\text{S}_2\text{O}_5$, therefore the second titration, as described in ISO 3629, is omitted for the purpose of this determination.

6.2.2.3 Calculation

The formula given in ISO 3629 for potassium disulfite shall be adapted for sodium disulfite.

The sodium disulfite content CB_1 , expressed as a mass fraction in %, is given by the following formula: